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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
TOSHIHIRO MINE	: EXAMINER: HARLAN, R. D.
SERIAL NO: 10/517,608	:
FILED: JUNE 6, 2005	: GROUP ART UNIT: 1713
FOR: HYDROGENATED COPOLYMER, PROCESS FOR PRODUCING THE SAME, AND HOT-MELT ADHESIVE COMPOSITION CONTAINING THE SAME	:

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is an appeal of the Rejection dated September 11, 2007 of twice-rejected Claims 1, 3, 5, and 7-12. A Notice of Appeal is **submitted herewith**.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Idemitsu Kosan Co., Ltd, having an address at 1-1, Marunouchi 3-chome, Chiyoda-ku, Tokyo 100-8321, Japan.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and the assignee are aware of no appeals, interferences, or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

Claims 1, 3, 5, and 7-12 stand rejected and are herein appealed. Claims 2, 4, and 6 have been canceled.

IV. STATUS OF THE AMENDMENTS

No amendment under 37 CFR 1.116 has been filed.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A summary of the claimed subject matter, as claimed in independent Claims 1 and 3, is mapped out below, with reference to page and line numbers in the specification added in **[bold]** after each element.

The claimed subject matter of Claim 1 is a hydrogenated copolymer obtained by hydrogenating a copolymer **[page 3, lines 23-24]** of cyclopentadiene and/or dicyclopentadiene with a vinyl-substituted aromatic compound **[page 4, lines 5-7]** in a mixing ratio of cyclopentadiene and/or dicyclopentadiene to vinyl-substituted aromatic compound of from 70:30 to 20:80 by weight, **[page 6, lines 19-22]** and having a softening point falling in a range of 45 to 55°C determined by a ball & ring method, **[page 3, line 24-page 4, line 1]** wherein the hydrogenated copolymer has a softening point of 85 to 95°C determined by the ball & ring method. **[page 4, lines 1-3]**

The claimed subject matter of Claim 3 is a production process for hydrogenating a copolymer **[page 4, lines 8-9]** of cyclopentadiene and/or dicyclopentadiene and a vinyl-substituted aromatic compound **[page 4, lines 16-18]** in a mixing ratio of cyclopentadiene and/or dicyclopentadiene to vinyl-substituted aromatic compound of from 70:30 to 20:80 by

weight, **[page 6, lines 19-22]** said hydrogenated copolymer having a softening point of 85 to 95°C determined by a ball & ring method, **[page 4, lines 9-10]** comprising hydrogenating said copolymer, which has a softening point falling in a range of 45 to 55°C determined by the ball & ring method. **[page 4, lines 10-13]**

VI. GROUNDS OF REJECTION

Claims 1, 3, 5, and 7-12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over WO 95/12623 (Hentges et al).

VII. ARGUMENT

Claims 1, 3, 5, and 7-12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hentges et al. That rejection is untenable and should not be sustained.

Hentges et al is drawn to hydrogenated hydrocarbon resins, methods of preparation and uses as tackifiers for adhesive compositions comprising polar-group containing copolymers, particularly acrylic copolymers (page 1, lines 5-7), which hydrogenated hydrocarbon resins have a ring and ball softening point of from 40°C to about 120°C (page 2, lines 34-35). While Hentges et al does not disclose a particular softening point range for their resin prior to hydrogenation, it is noted that the examples therein, i.e., Resin Examples A through E, have softening points of 92°C, 95°C, 98°C, 112°C, and 88°C, respectively, i.e., from 88°C to 112°C prior to hydrogenating. See Table II (page 11). Table III (page 12) shows the softening points after hydrogenation for these Resin Examples, which are 92°C, 95°C, 98°C, 119°C, and 87°C, respectively. Thus, in only Resin D did the softening point rise after hydrogenation; in Resins A, B and C, softening point after hydrogenation remained the same, and in resin E, it slightly decreased. Thus, one of ordinary skill in the art would not generally expect a rise in softening temperature by hydrogenation. Nor would one expect

that hydrogenation could have an effect of raising the softening point from 45-55°C to 85-95°C.

The comparative data in the specification provides further evidence of patentability herein. Example 1 employs a copolymer having a softening prior to hydrogenation of 50°C, i.e., within the terms of the present claims; Comparative Example 1 employs a copolymer having a softening prior to hydrogenation of 60°C, i.e., outside the terms of the present claims. The corresponding softening points after hydrogenation are 91°C and 90°C, respectively. As shown in Table 1 at page 17 of the specification, and described in the following three paragraphs thereafter, Example 1 had a smaller heating loss after heating at 180°C for one hour and a better heating hue (Gardner) after heating at 180°C for 48 hours. Similar results are shown in Table 2 at page 19 of the specification, wherein Example 2 and Comparative Example 2 employed the same copolymers as Example 1 and Comparative Example 1, respectively.

The above-discussed results could not have been predicted from Hentges et al.

The Examiner has found in the Office Action dated February 27, 2007 that Hentges et al discloses "a broad softening point range that covers both hydrogenated and non-hydrogenated ranges of the present claims," that in performing as a chain transfer agent, dicyclopentadiene also acts as a monomer, and that Hentges et al actually discloses a so-called Heartcut Distillate (HCD) containing dicyclopentadiene.

In reply, Hentges et al neither discloses nor suggests the presently-recited hydrogenated copolymer of cyclopentadiene and/or dicyclopentadiene with a vinyl-substituted aromatic compound, wherein the components are present in a mixing ratio of cyclopentadiene and/or dicyclopentadiene to vinyl-substituted aromatic compound of from 70:30 to 20:80 by weight, or a production process therefor. While Hentges et al discloses dicyclopentadiene *per se*, it is as a typical chain transfer agent, not as a monomer in the

preparation of a copolymer. See Table IB at page 10. In Table IA of Hentges et al, a typical HCD is described, wherein the typical content of dicyclopentadiene/cymene is 0.29 wt%. The total amount of vinyl-substituted aromatic compounds in the HCD, i.e., styrene, alpha-methyl styrene, etc., makes up about 33 wt% of the HCD. Thus, the mixing ratio of dicyclopentadiene to vinyl-substituted aromatic compounds in the HCD is approximately 0.29/33 : 100, or only 0.88 : 100, by weight. When calculating based on the "Typical Range" column of Table IA, using the maximum amount for dicyclopentadiene/cymene, and the minimum amount for the vinyl-substituted aromatic compounds, the mixing ratio is approximately 0.8/24.8 : 100, or only 3.2 : 100, by weight. On the other hand, when employing dicyclopentadiene as a chain transfer agent, as shown in Table IB of Hentges et al, the amount of dicyclopentadiene in the "Amylenes" type chain transfer agent is listed as 0.59, which is 0.71% wt%, based on the total weight of 83.07 of the Amylenes components. Thus, even if the Examiner were correct that the dicyclopentadiene of Hentges et al formed a copolymer with vinyl-substituted aromatic compounds therein, the relative amount of dicyclopentadiene is significantly less than that required by the present claims.

In the present Office Action, the Examiner acknowledges that the present invention differs from Hentges et al in the amount of dicyclopentadiene in the copolymer, but also finds that one of ordinary skill in the art would be motivated to add more dicyclopentadiene "because adding more dicyclopentadiene would result in a lower softening point."

In reply, there is nothing apparent in Hentges et al that the softening point range disclosed therein is problematical. Therefore, without the present disclosure as a guide, there would have been no motivation to adjust the amounts of the many components in Hentges et al's typical HCD. Clearly, there could be no motivation to make such a significant change of a maximum possible content of 3.2% by weight to the presently-recited minimum herein of, in effect, 20% by weight, of dicyclopentadiene.

For all the above reasons, it is respectfully requested that this rejection be REVERSED.

VIII. CONCLUSION

For the above reasons, it is respectfully requested that all the rejections still pending in the Final Rejection be REVERSED.

Respectfully submitted,

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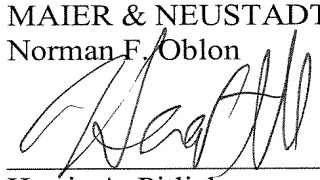
MAIER & NEUSTADT, P.C.
Norman F. Oblon



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CLAIMS APPENDIX

Claim 1: A hydrogenated copolymer obtained by hydrogenating a copolymer of cyclopentadiene and/or dicyclopentadiene with a vinyl-substituted aromatic compound in a mixing ratio of cyclopentadiene and/or dicyclopentadiene to vinyl-substituted aromatic compound of from 70:30 to 20:80 by weight, and having a softening point falling in a range of 45 to 55°C determined by a ball & ring method, wherein the hydrogenated copolymer has a softening point of 85 to 95°C determined by the ball & ring method.

Claim 3: A production process for hydrogenating a copolymer of cyclopentadiene and/or dicyclopentadiene and a vinyl-substituted aromatic compound in a mixing ratio of cyclopentadiene and/or dicyclopentadiene to vinyl-substituted aromatic compound of from 70:30 to 20:80 by weight, said hydrogenated copolymer having a softening point of 85 to 95°C determined by a ball & ring method, comprising hydrogenating said copolymer, which has a softening point falling in a range of 45 to 55°C determined by the ball & ring method.

Claim 5: A hot melt adhesive composition comprising the hydrogenated copolymer as described in claim 1.

Claim 7: The hot melt adhesive composition as described in claim 5, further comprising a base polymer and a plasticizer.

Claim 8: The hydrogenated copolymer of claim 1, wherein the copolymer is obtained from dicyclopentadiene and styrene.

Claim 9: The production process of claim 3, wherein the copolymer is obtained from dicyclopentadiene and styrene.

Claim 10: The hot melt adhesive composition according to claim 5, wherein the copolymer is obtained from dicyclopentadiene and styrene.

Claim 11: The hydrogenated copolymer of claim 1, which copolymer, prior to hydrogenating, has a vinyl-substituted aromatic compound unit content of 30 to 90 mass%, a bromine value of 30 to 90 g/100g, and a number average molecular weight of 400 to 1000.

Claim 12: The hydrogenated copolymer of claim 1, which hydrogenated copolymer has a vinyl-substituted aromatic compound unit content of 0 to 35 mass%, a bromine value of 0 to 30 g/100g, and a number average molecular weight of 400 to 1000.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.